

Shell - Building

office building

bilateral daylighting without functional specification, windows in adjacent walls



building

Built in 1930, this building belongs to the first generation of modern buildings. It consists of a steel construction with a travertine clad curtain wall facade. The building incorporates about 9 800 m² of office space surrounding an exterior courtyard. The most interesting feature of the Shell-building is its southern facade, where a staggered organization of offices create a saw-tooth like character. The height of the building echoes the rhythm of this facade, creating a very dynamic image.



daylight strategy

The offices on the South facade receive daylight from windows along the entire exterior wall, including a curved window in the corner. These windows are to provide appropriate daylighting, extensive views to the outside, and natural ventilation. When the building was constructed, interior curtains were the only protection against heat and glare. Manually controlled exterior louvers were added later. The curved window on the corner is not equipped with any shading system. This results in the offices being too hot during the summer.



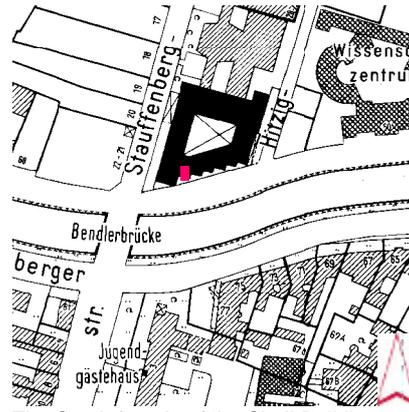
office

The room recorded was not occupied. The facade consists of a double construction of brass panels. The windows were imported from the UK.

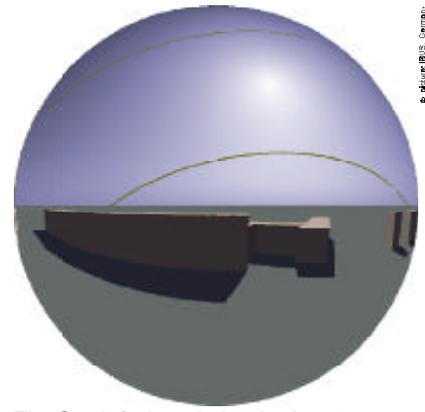
Berlin, Germany

52,5°N, 13,2°E

predominantly cloudy



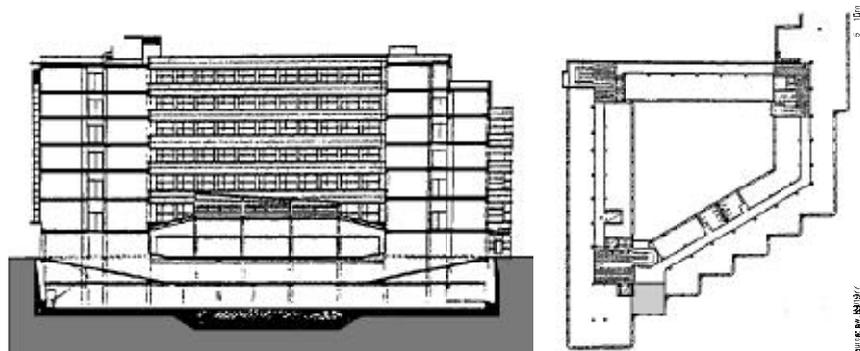
The South facade of the Shell-Building faces the Landwehr channel.



The South facing window is almost unobstructed.



Facade of the Shell-Building. The opaque part of the facade is made of travertine, the photograph shows the original facade before retrofitting. The building is classified as a monument.



Left side: Cross-section. Right side: Floor plan of the Shell-Building, with a saw-tooth like shape of the main facade. The other parts of the building are quite conventional. The steel frame structure had been quite innovative when the building was erected.



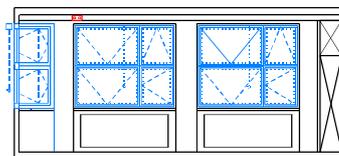
Office in the Shell-Building, the exterior louver blinds were added later, originally the only shading device were interior curtains. The round shaped edge is not equipped with any shading system at all, during the summer period overheating is a major problem.



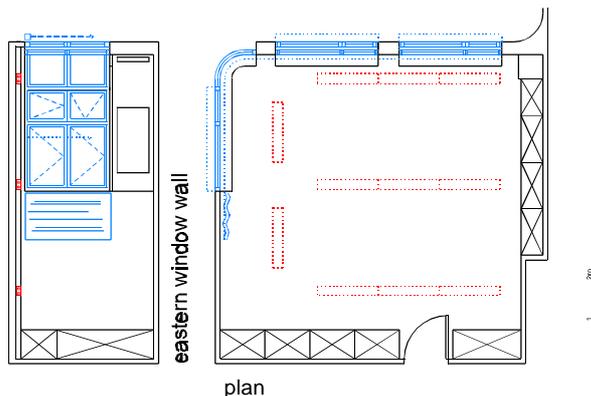
Exterior louvers have been retrofitted. They disturb the flat apparition of the facade.



The casements of the interior facade and of the exterior facade must be opened separately.



southern window wall



eastern window wall

plan

building data

size	20 000 m ²
number of stories	10
architect	Emil Fahrenkamp
year of completion	1930

office room

daylight strategy	bilateral, sidelighting
dimensions (depth/width/height)	6,3 m / 6,2 m / 2,7 m
room area	39 m ²
floor	carpet, 15%
wall	painted plaster, 60%
ceiling	white fiberboard, 80%
window parapet	white varnish, 57%
window sill	travertine, 25%
furniture	coated timber, 18%
south facing window	winter window
east facing window	two separate window frames with single clear glazing
lamp types	fluorescent lamps
installed power density	20 W/m ²
control strategy	manual switching

facade	south facade		east facade	
	orientation	195°	105°	
data	glazed area	7,0 m ²	2,3 m ²	
	opening index	0,41	0,13	
	daylighting	●	●	
function	view outside	●	●	
	ventilation	●	●	
	operable	●	●	
	shading	●	●	
	redirection	□	□	
systems	exterior louvers	●	●	
	curtain	□	□	
function	sun shading	●	●	
	glare protection	●	●	
	redirection	□	□	
location	inside	□	●	
	window pane	□	□	
	outside	●	□	
	movable	●	●	
fixed	□	□		